

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Samuels *et al.*

Application number: 10/696,507

Filed: October 29, 2003

For: *A Method of Determining Path Maximum  
Transmission Unit*

Attorney Docket No.: 2006579-0757 (CTX-290)

Art Unit: 2609

Examiner: Rivas, Salvador E

Conf. No.: 5753

**O.K. to ENTER**

/S.E.R./

01/15/2009

MS Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION**

Dear Sir:

**INTRODUCTORY COMMENTS**

This Amendment and Response is filed responsive to the final Office Action dated November 13, 2008. In view of the comments set forth below, Applicants respectfully urge reconsideration, withdrawal of the outstanding rejections and allowance of the claims.

**Amendments to the Claims** are reflected in the listing of claims, which begins on page 2 of this paper.

**Remarks/Arguments** begin on page 7 of this paper.

**AMENDMENTS TO THE CLAIMS**

Upon entry of this amendment, the following listing of claims will replace all prior versions and listings of claims in the pending application.

*IN THE CLAIMS*

Please amend claims 2 and 14 and cancel claims 4 and 16 as follows:

1. (Canceled).
2. (Currently Amended) A method for performing by proxies discovery of a maximum transmission unit of a path between a client and a server in a more efficient manner, the method comprising the steps of:

- (a) determining, by a first proxy, a size for a path maximum transmission unit (PMTU) for transmitting network packets between a client and a server by increasing a value of the PMTU by a predetermined percentage for each round-trip-time that elapses without receipt of an indication that fragmentation has occurred;

- (b) repacketizing, by the first proxy, packets received from the client for transmission to the server into packet sizes in accordance with the size of the PMTU;

- (c) transmitting, by the first proxy, the repacketized packets to the server;

- (d) detecting, by a second proxy, a packet received from transmission of repacketized packets from the first proxy is fragmented; and

- (e) transmitting, by the second proxy to the first proxy in response to the detection, an acknowledgement packet marked with an indicator that fragmentation has occurred.

3. (Previously presented) The method of claim 2, wherein step (a) comprises determining, by the first proxy, a value for the PMTU greater than the current value of the PMTU.

4. (Canceled)
5. (Previously presented) The method of claim 2, wherein step (c) comprises transmitting, by the first proxy, the repacketized packets without one of prohibiting fragmentation or setting the defragmentation flag of the packet off.
6. (Previously presented) The method of claim 2, wherein step (c) comprises generating, by the second proxy, the acknowledgement packet to have a bit in a transport control protocol header set to indicate that fragmentation has occurred.
7. (Previously presented) The method of claim 2, wherein step (c) comprises generating, by the second proxy, the acknowledgement packet to have an option field in a transport control protocol header set to indicate that fragmentation has occurred.
8. (Previously presented) The method of claim 2, wherein step (c) comprises generating, by the second proxy, the acknowledgement packet to have a field in an internet protocol header set to indicate that fragmentation has occurred.
9. (Previously presented) The method of claim 2, comprising stopping, by the first proxy, PMTU discovery in response to receipt of the acknowledgement packet.
10. (Previously presented) The method of claim 2, comprising reducing, by the first proxy, the size of the PMTU in response to receipt of the acknowledgement packet.
11. (Previously presented) The method of claim 10, comprising transmitting, by the first proxy, repacketized client packets formed in accordance with the size of the decreased PMTU.
12. (Previously presented) The method of claim 10, comprising reducing the size of the PMTU by one-half.

13. (Currently amended) The method of claim 4 2, wherein step (a) comprising triggering the determination of the PMTU by the first proxy in response to one of receipt of the indicator that fragmentation has occurred or an elapse of time.

14. (Currently Amended) A system for performing by proxies discovery of a maximum transmission unit of a path between a client and a server in a more efficient manner, the system comprising:

a first proxy determining a size for a path maximum transmission unit (PMTU) for transmitting network packets between a client and a server by increasing a value of the PMTU by a predetermined percentage for each round-trip-time that elapses without receipt of an indication that fragmentation has occurred, repacketizing packets received from the client for transmission to the server into packet sizes in accordance with the size of the PMTU, and transmitting the repacketized packets to the server; and

a second proxy detecting a packet received from transmission of repacketized packets from the first proxy is fragmented, and transmitting to the first proxy in response to the detection of an acknowledgement packet marked with an indicator that fragmentation has occurred.

15. (Previously presented) The system of claim 14, wherein the first proxy establishes a value for the PMTU greater than the current value of the PMTU.

16. (Canceled)

17. (Previously presented) The system of claim 14, wherein the first proxy transmits the repacketized packets without one of prohibiting fragmentation or setting the defragmentation flag of the packet off.

18. (Previously presented) The system of claim 14, the second proxy generates the acknowledgement packet to have a bit in a transport control protocol header set to indicate that fragmentation has occurred.
19. (Previously presented) The system of claim 14, the second proxy generates the acknowledgement packet to have an option field in a transport control protocol header set to indicate that fragmentation has occurred.
20. (Previously presented) The system of claim 14, the second proxy generates the acknowledgement packet to have a field in an internet protocol header set to indicate that fragmentation has occurred.
21. (Previously presented) The system of claim 14, wherein the first proxy stops PMTU discovery in response to receipt of the acknowledgement packet.
22. (Previously presented) The system of claim 14, wherein the first proxy the first proxy reduces the size of the PMTU in response to receipt of the acknowledgement packet.
23. (Previously presented) The system of claim 14, wherein the first proxy transmits repacketized client packets formed in accordance with the size of the decreased PMTU.
24. (Previously presented) The system of claim 14, wherein the reduced comprises one-half of the size of the PMTU.
25. (Previously presented) The system of claim 14, wherein the first proxy is triggered to perform PMTU discovery in response to one of receipt of the indicator that fragmentation has occurred or an elapse of time.
26. (Allowed) A method for performing by proxies discovery of a maximum transmission unit of a path between a client and a server in a more efficient manner, the method comprising the steps of:

- (a) determining, by a first proxy, a size for a path maximum transmission unit (PMTU) for transmitting network packets between a client and a server, the size of the PMTU increased by a predetermined percentage for each round trip time that elapsed without receipt of an indicator that fragmentation has occurred;
  - (b) repacketizing, by the first proxy, packets received from the client for transmission to the server into packet sizes in accordance with the size of the PMTU;
  - (c) transmitting, by the first proxy, the repacketized packets to the server;
  - (d) detecting, by the second proxy, a packet received from transmission of repacketized packets from the first proxy is fragmented; and
  - (e) transmitting, by the second proxy to the first proxy in response to the detection, the acknowledgement packet marked with the indicator that fragmentation has occurred.
27. (Allowed) The method of claim 26, further comprising not receiving, by the first proxy, during a next round-trip time a second acknowledgement packet, and determining, by the first proxy, to increase the value of the PMTU by the predetermined percentage.
28. (Allowed) The method of claim 26, further comprising stopping, by the first proxy, PMTU discovery responsive to receiving the acknowledgment packet.

**REMARKS**

Claims 2-25 were presented for examination. Claims 2-3, 5-8, 10-15, 17-20 and 22-25 were rejected. The Examiner has allowed claims 26-28. Claims 4 and 16 were objected to by the Examiner as being dependent on a rejected base claim but allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In the present amendment, claims 2 and 14 have been amended and claims 4 and 16 canceled. No new matter has been introduced. Upon entry of the present amendment, claims 2-3, 5-15 and 17-28 will be currently pending in this application, of which claims 2, 14 and 26 are independent. Applicants submit that claims 2-3, 5-15 and 17-28 are in condition for allowance.

The following comments address all stated grounds of rejection. Applicants respectfully traverse all rejections and urge the Examiner to pass the claims to allowance in view of the remarks set forth below.

**CLAIM REJECTIONS UNDER 35 U.S.C. §103****I. Claims 2, 6, 8, 10, 12-14, 18, 20, 22 and 24-25 Rejected Under 35 U.S.C. §103**

Claims 2, 6, 8, 10, 12-14, 18, 20, 22 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neale et al. (US Patent Application Publication No. 2003/0131079 A1) ("Neale") in view of Dolson (US Patent Application Publication No. 2004/0006643) ("Dolson"). Applicants traverse this rejection and submit that Neale and Dolson fail to teach or suggest each and every feature of the claimed invention. Independent claims 2 and 14 have been amended to incorporate the allowable subject matter identified by the Examiner in claims 4 and 16, respectively, thereby mooting this rejection with respect to these claims. Claims 6, 8 and 12 depend on and incorporate all the patentable subject matter of independent claim 2, as amended,

and claims 18, 20, 22 and 24-25 depend on and incorporate all the patentable subject matter of independent claim 14, as amended. Thus, claims 6, 8, 10, 12-13, 18, 20, 22 and 24-25 are also patentable and in condition for allowance. Accordingly, Applicants request the Examiner to withdraw the rejection of claims 2, 6, 8, 10, 12-14, 18, 20, 22 and 24-25 under 35 U.S.C. 103.

## II. Dependent Claims Rejected Under 35 U.S.C. §103

Claims 3, 5, 11, 15, 17 and 23 are rejected under 35 U.S.C. 103(a) as unpatentable over Neale in view of Dolson and further in view of Dempo (US Patent No. 6,934,288) (“Dempo”). Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as unpatentable over Neale in view of Dolson and further in view of Donzis et al. (US Patent No. 6,973,097) (“Donzis”). Claims 9 and 21 are rejected under 35 U.S.C. 103(a) as unpatentable over Neale in view of Dolson and further in view of Badt et al. (US Patent No. 5,959,974) (“Badt”). Applicants traverse these rejections and submit that Neale, Dolson, Dempo, Donzis and Badt, alone or in combination, fail to teach or suggest each and every feature of the claimed invention.

For the reasons discussed above in connection with amended independent claims 2 and 14, Applicants submit these independent claims are patentable and in condition for allowance. Claims 3, 5, 7, 9 and 11 depend on and incorporate all the patentable subject matter of independent claim 2. Claims 15, 17, 19, 21 and 23 depend on and incorporate all the patentable subject matter of independent claim 14. Neale, Dolson, Dempo, Donzis and Badt, alone or in combination fail to detract from the patentability of these dependent claims. Thus, Applicants submit that claims 3, 5, 7, 9, 15, 17, 19, 21 and 23 are patentable and in condition for allowance. Accordingly, Applicants request the Examiner to withdraw the rejection of claims 3, 5, 7, 9, 15, 17, 19, 21 and 23 under 35 U.S.C. 103.



**CONCLUSION**

In light of the aforementioned amendments and arguments, Applicants contend that each of the Examiners rejections has been adequately addressed and all of the pending claims are in condition for allowance. Accordingly, Applicants respectfully request reconsideration, withdrawal of all grounds of rejection, and allowance of all of the pending claims.

Should the Examiner feel that a telephone conference with Applicants' attorney would expedite prosecution of this application, the Examiner is urged to contact the Applicants' attorney at the telephone number identified below.

Respectfully submitted,

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Dated: January 13, 2009

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